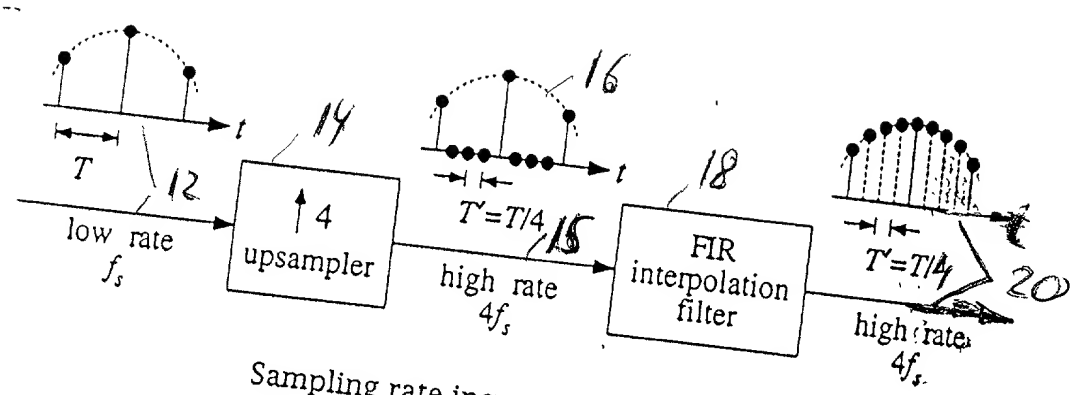
Wideband-104/Tank-193

Prior Art



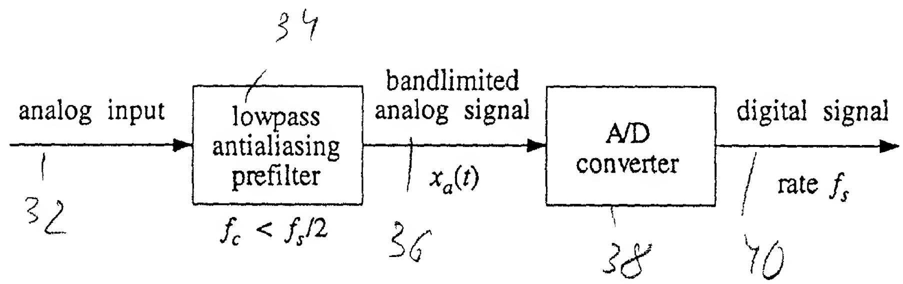
Sampling rate increase with digital interpolation

10

FIG. 1

Wideband-104/Tank-193

Prior Art

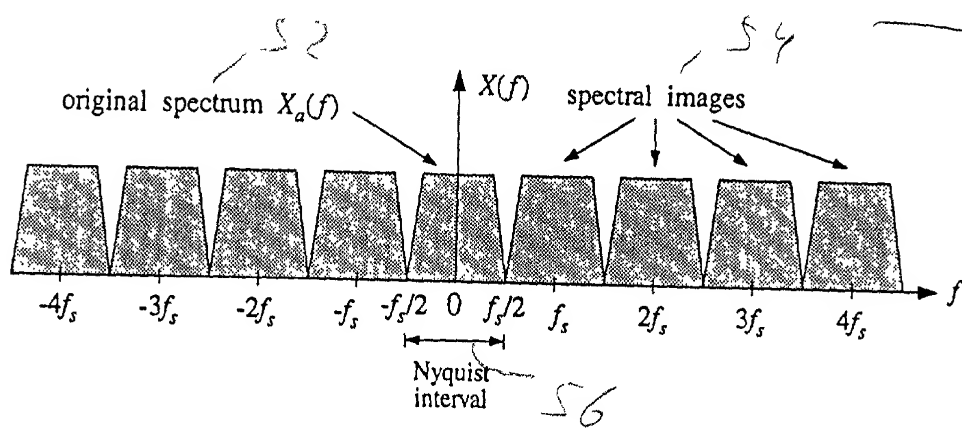


Prefiltering and sampling of analog signal.

30

FIG. 2

Prior Art



50

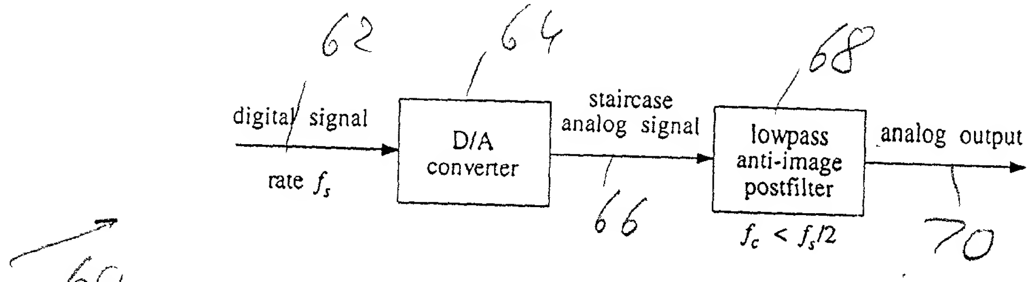
FIG 3

Spectrum of signal sampled at low rate f_s.

Wideband-104/Tank-193

Wideband-104/Tank-193

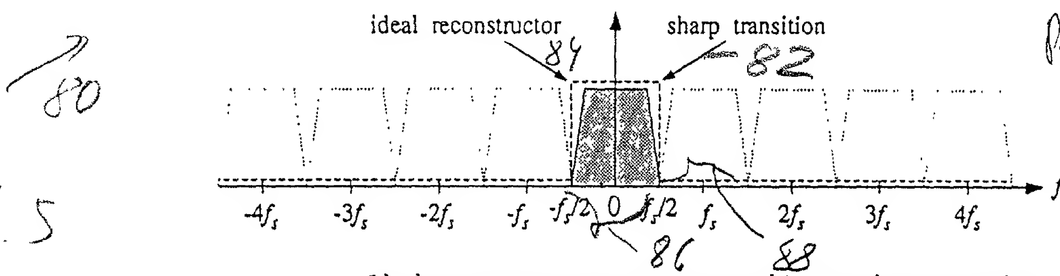
Prior Art



Analog reconstruction of sampled signal.

FIG. 4

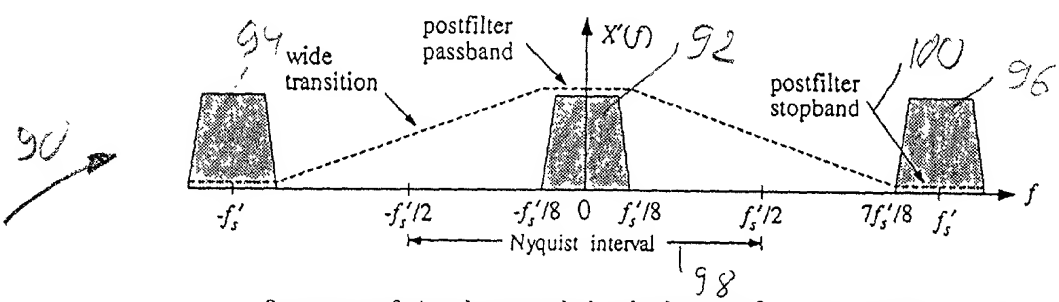
Prior Art



Ideal reconstructor removes spectral images due to sampling.

FIG. 5

Prior Art



Spectrum of signal resampled at high rate $4f_s$, and postfilter requirements.

FIG. 6

Wideband-104/Tank-193

Wideband-104/Tank-193 Prior Art

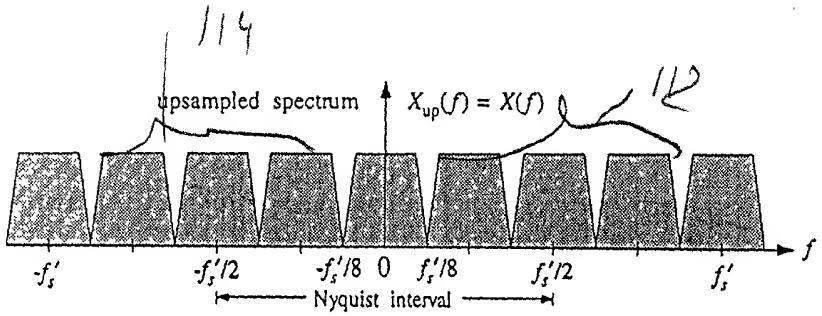


FIG. 7

Spectrum of low-rate samples with respect to the high rate $4f_s$.

Prior Art

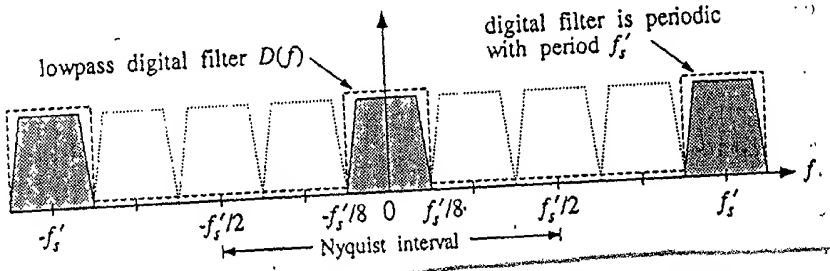


FIG. 8B

Prior Art

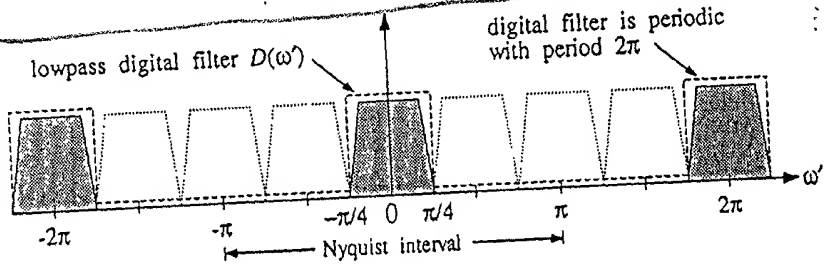
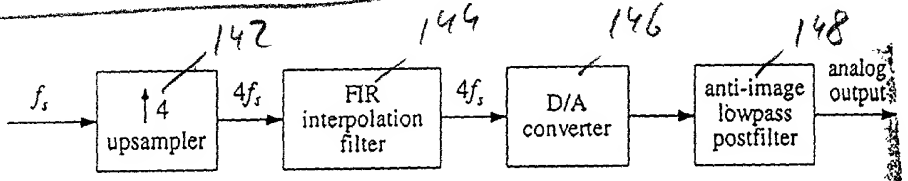


FIG. 8A

High-rate FIR interpolator removes intermediate spectral images.

Prior Art



140

4-times oversampling digital filter helps analog reconstruction.

FIG. 9

Wideband-104/Tank-193

Baseband Mode

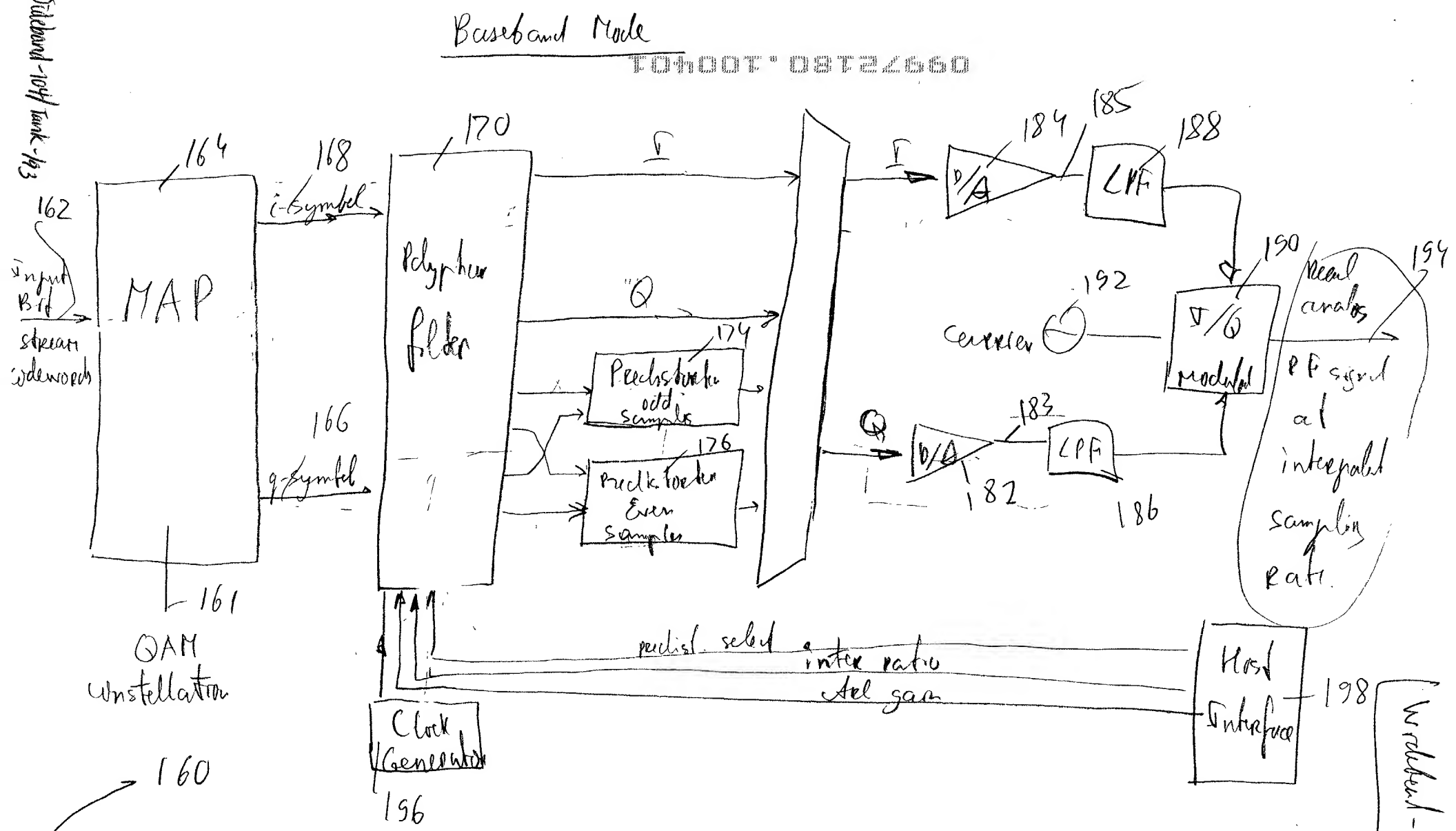
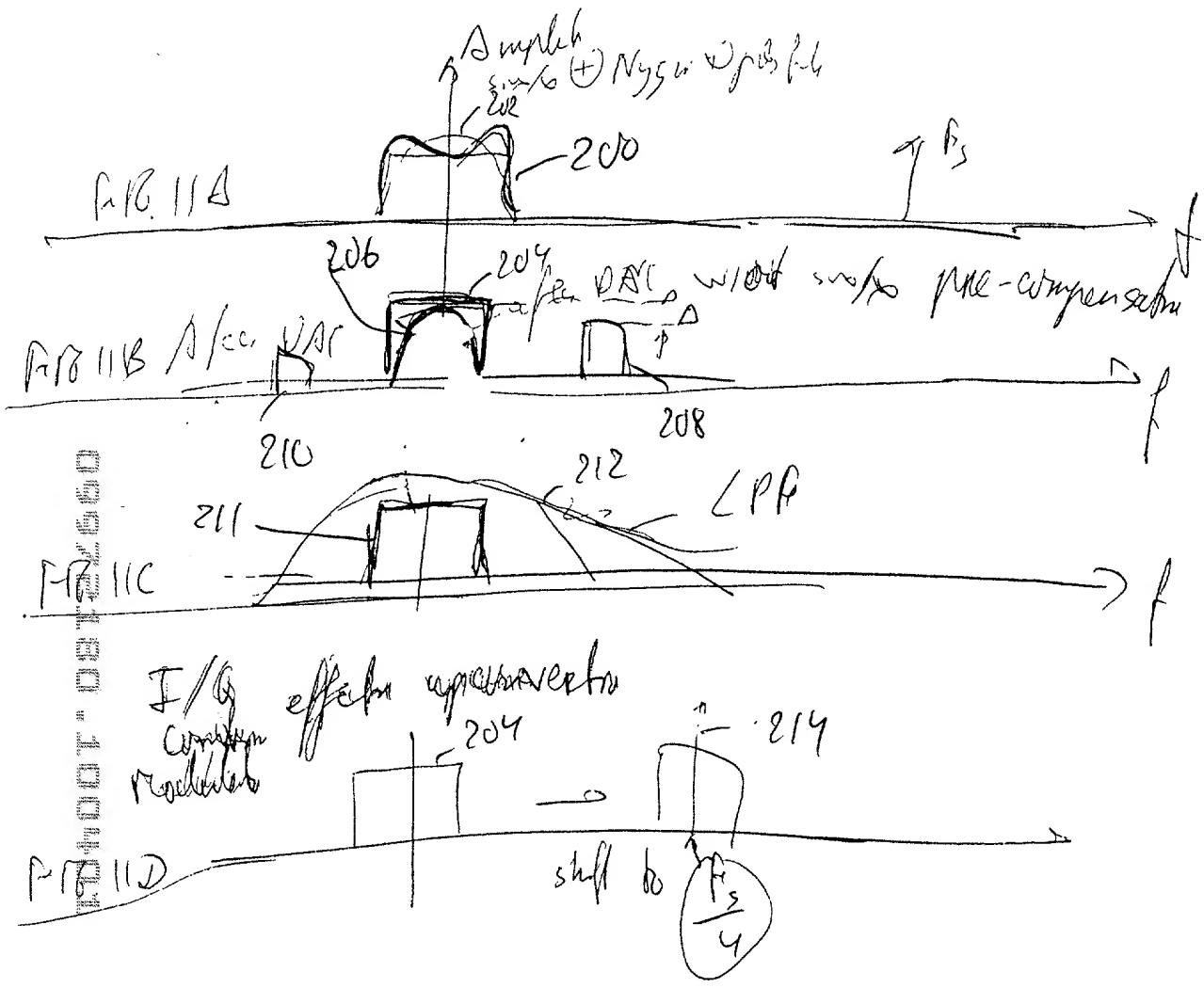


FIG. 10

Baseband Mode



Workbench-104/Task-193

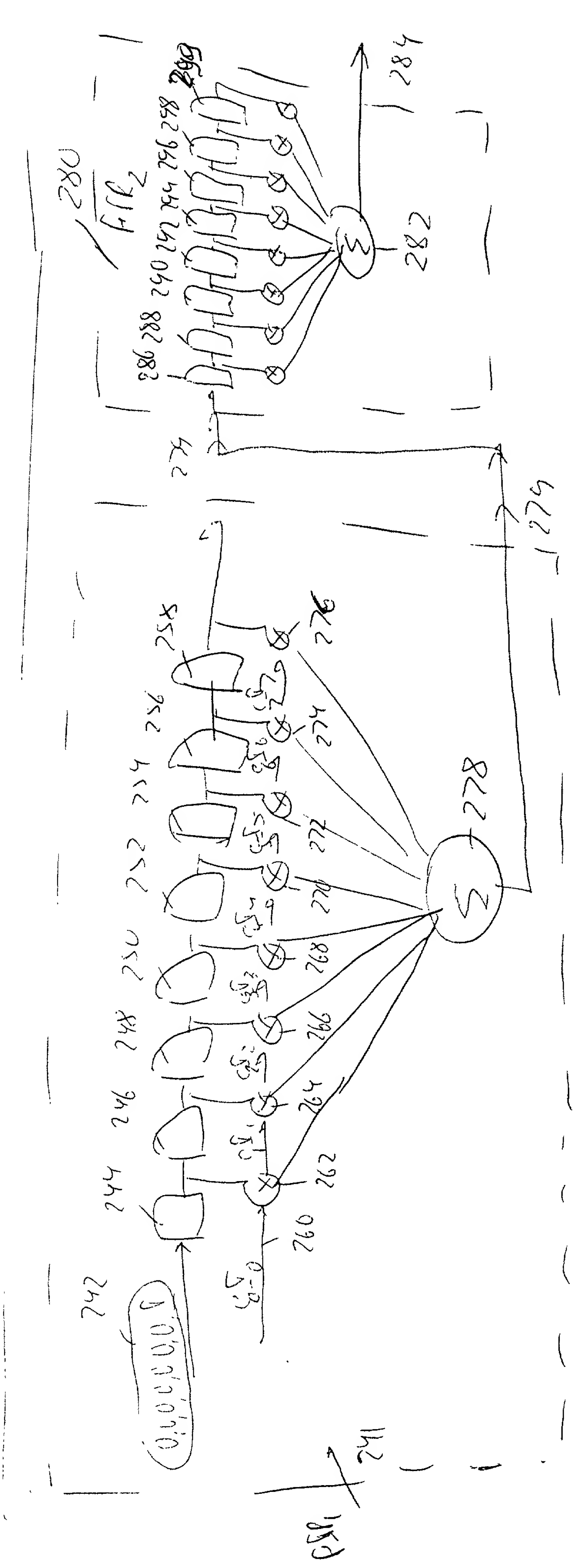


FIG. 12

Wideband - 104 Bank - 193

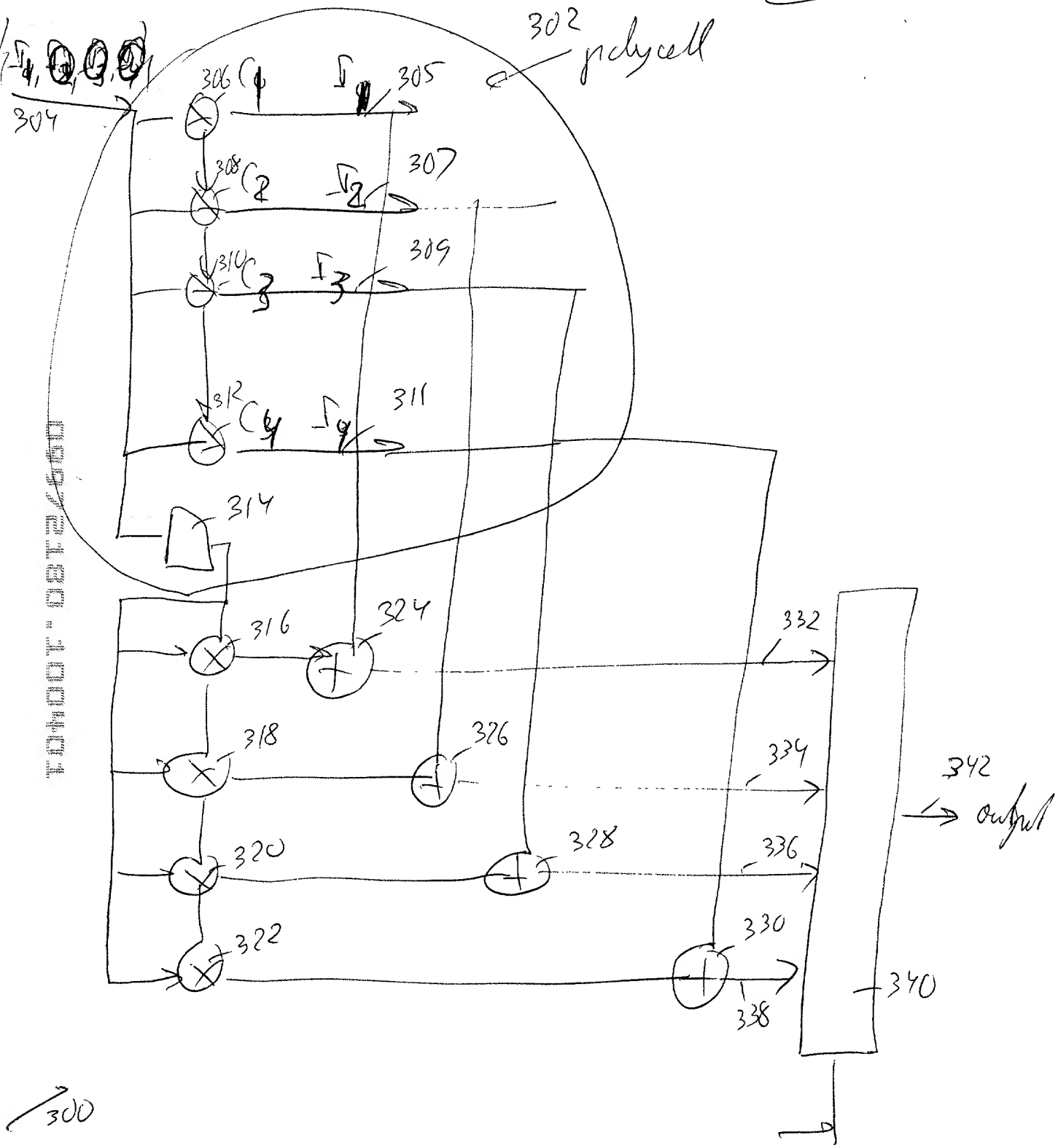
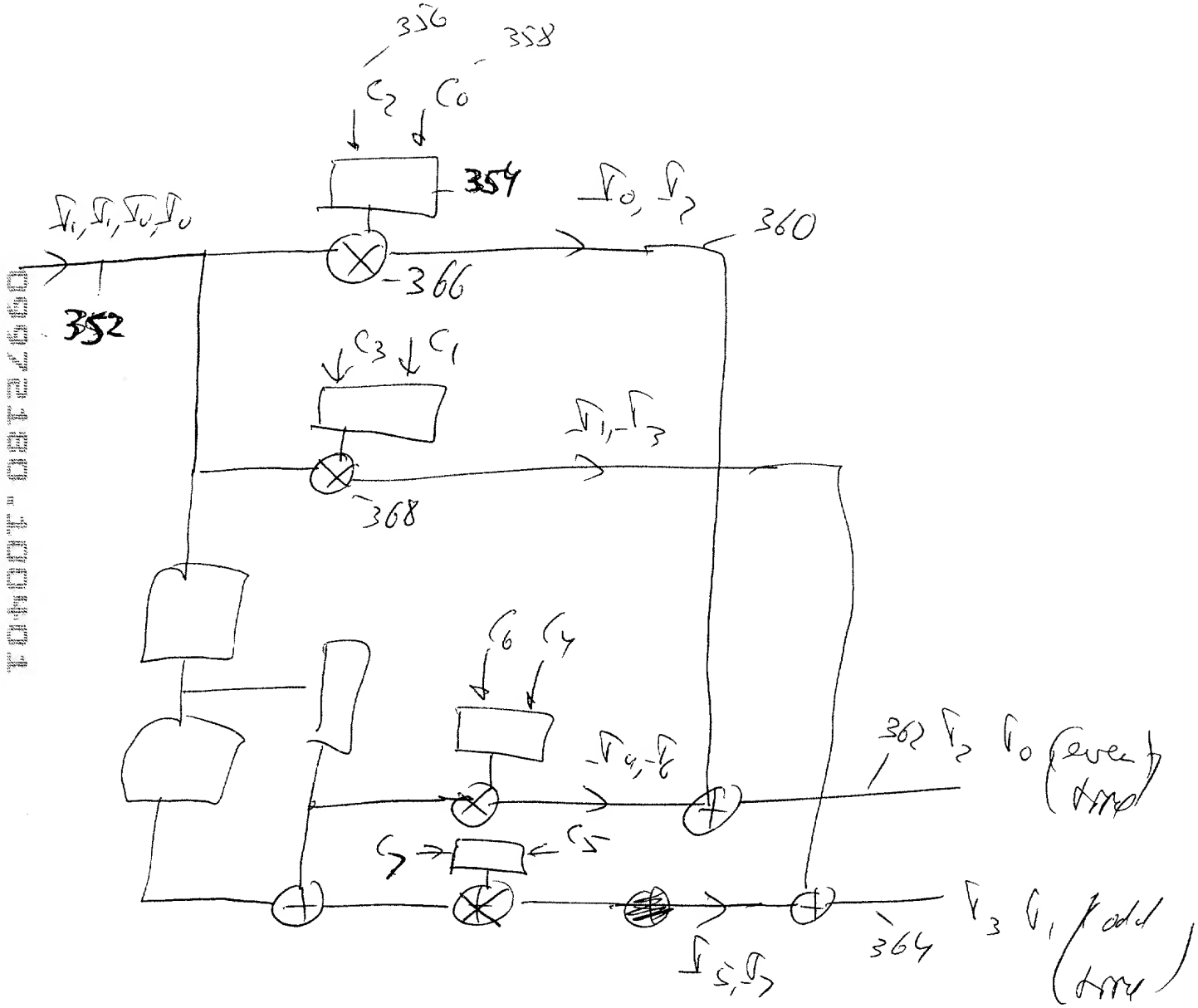


FIG. 13

Withdrawn - 104 / Rank - 193



350

FIG. 14

Wadekar-104/Dank-153

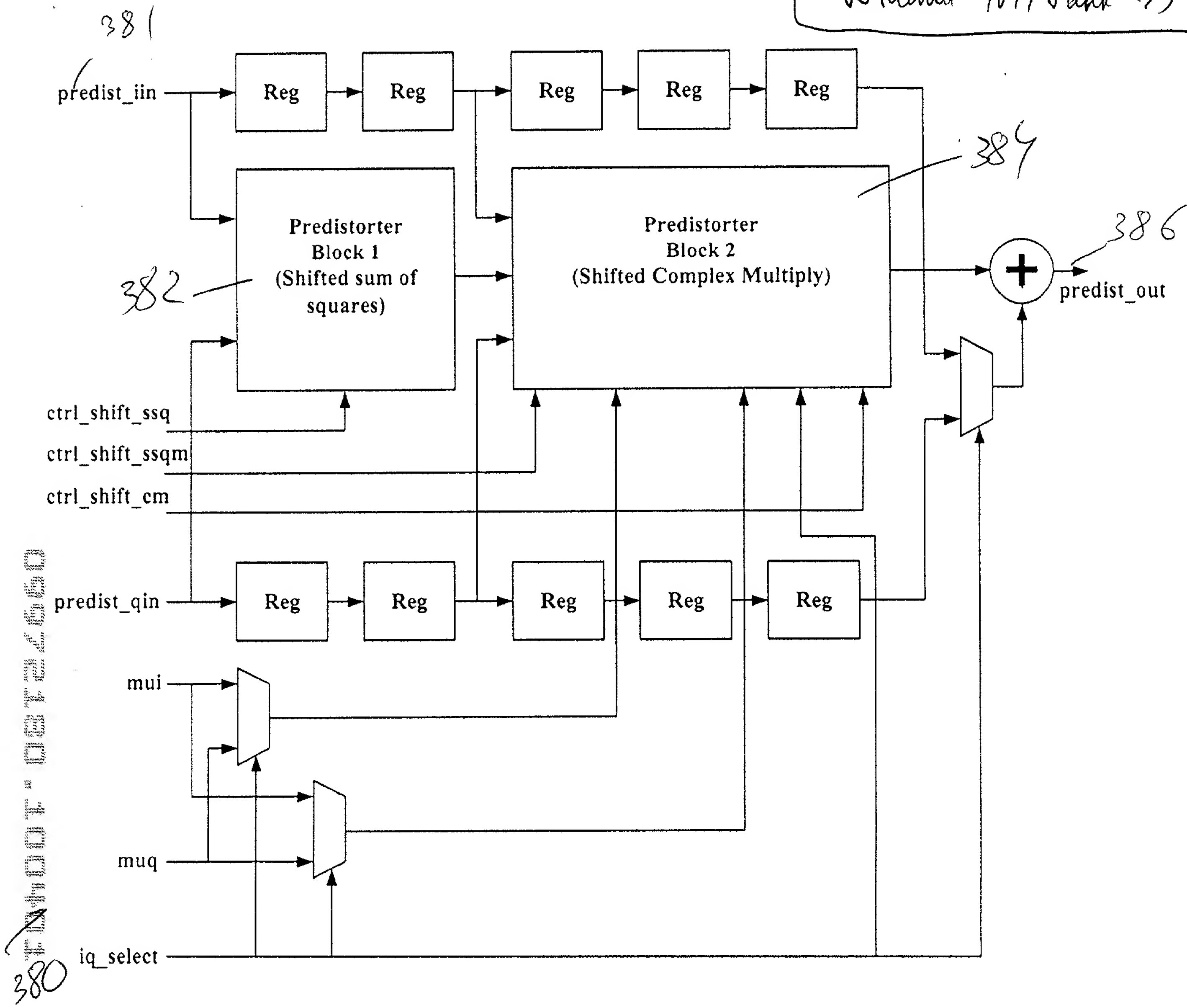


FIG. 15

Pass Band Mode

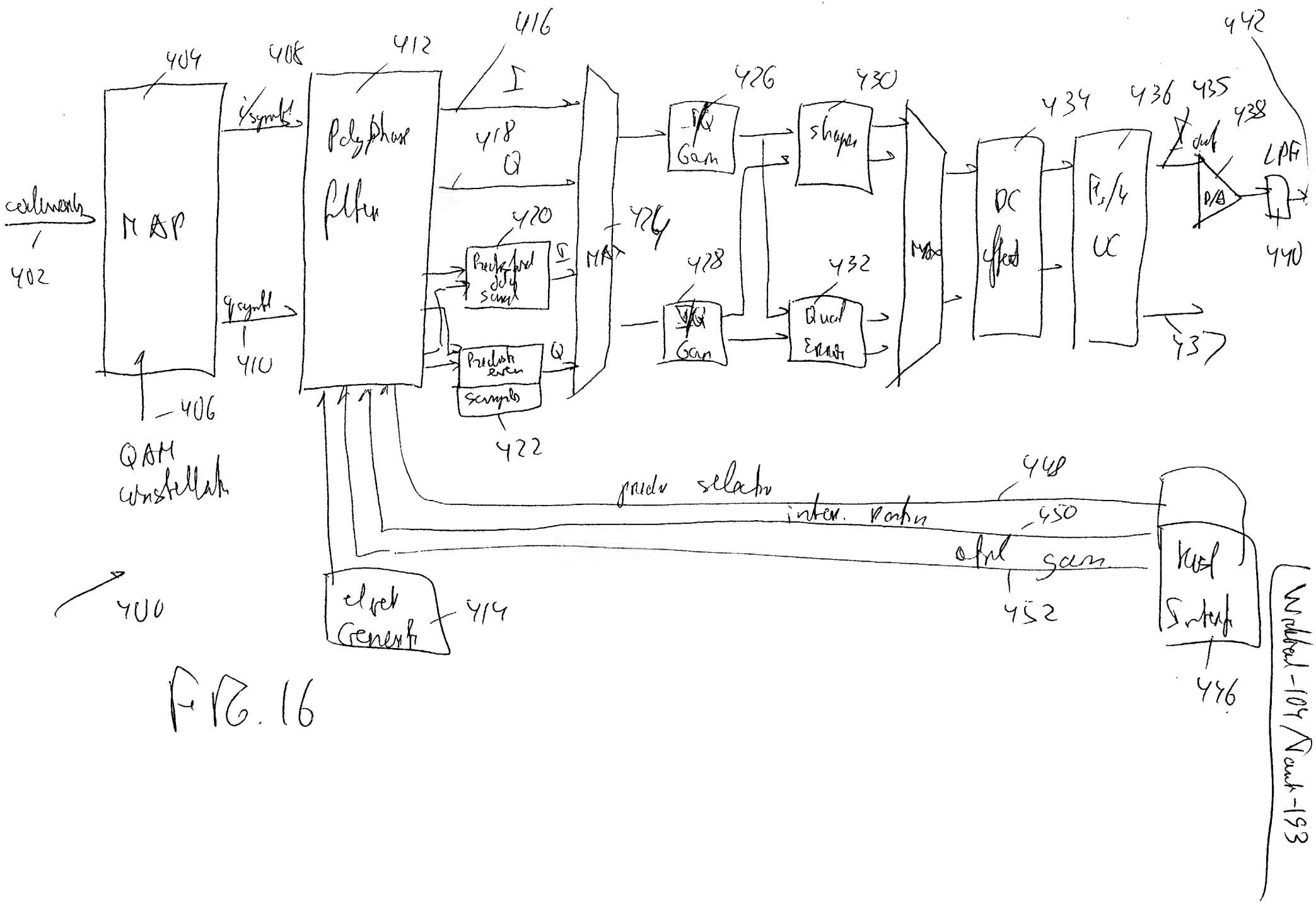
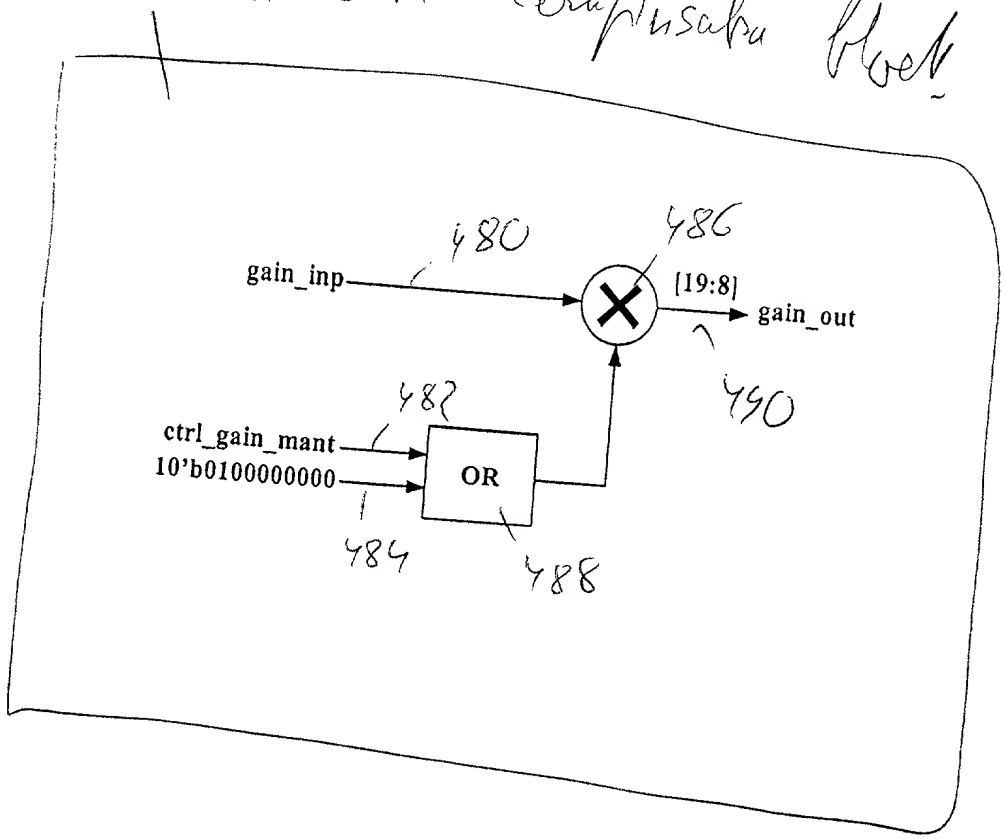


FIG. 16

(Workbook-104/Task-193

I/Q Gain Compensation Block



426

FIG. 17

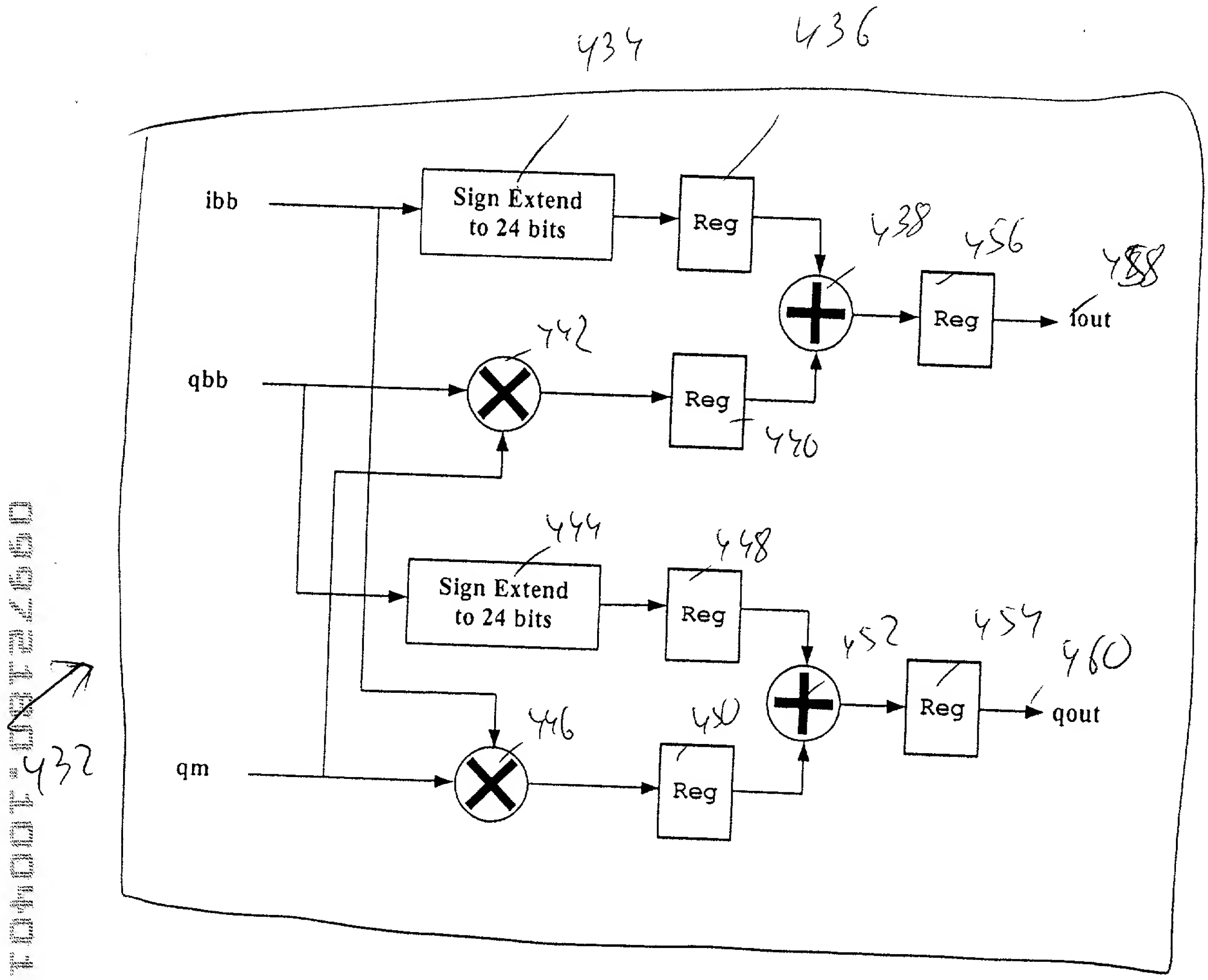
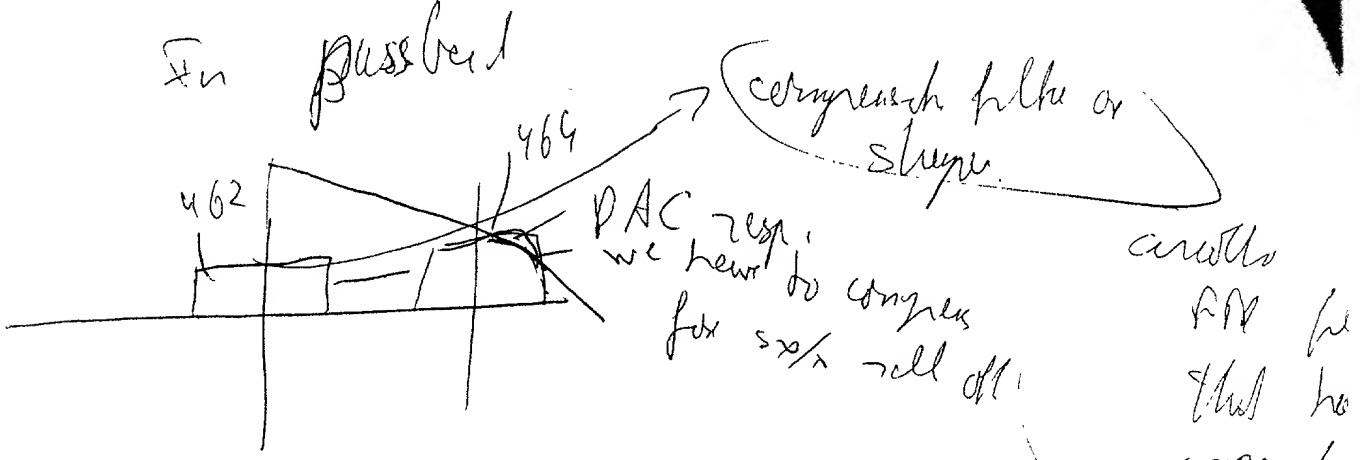

432
434
436
438
456
488
ibb
Sign Extend
to 24 bits
Reg
iout
qbb
442
Reg
440
444
448
Sign Extend
to 24 bits
Reg
452
454
460
Reg
qout
qm
446
450
Reg

FIG. 18

Passband

Wideband - 104/Part - 193



In passband slopes filter has to be complex

FIG 19A

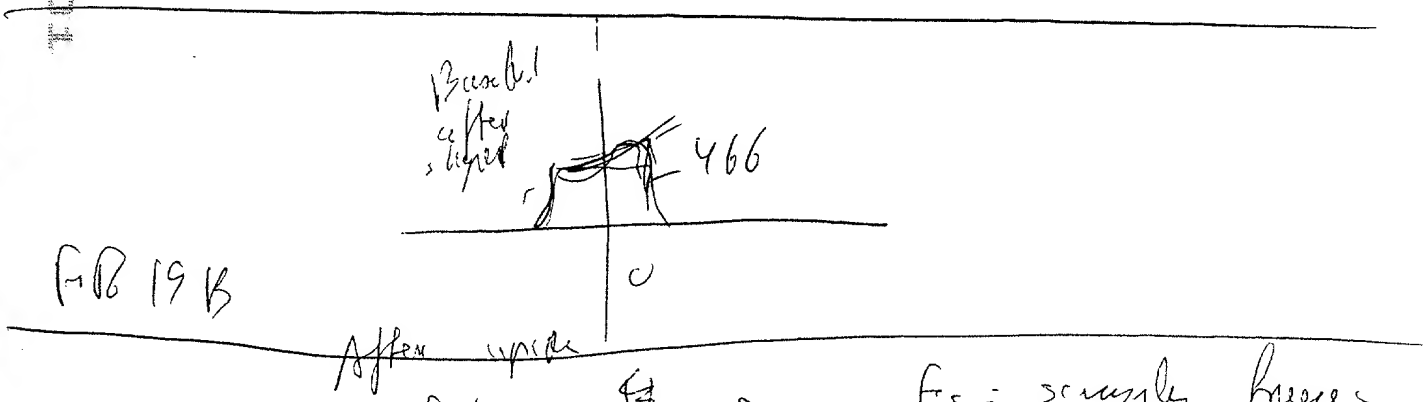


FIG 19B

FIG. 19C

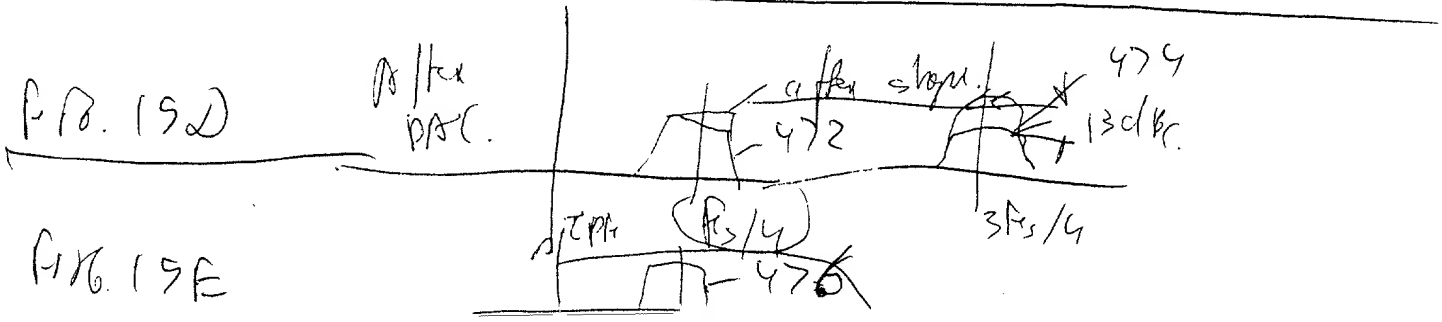
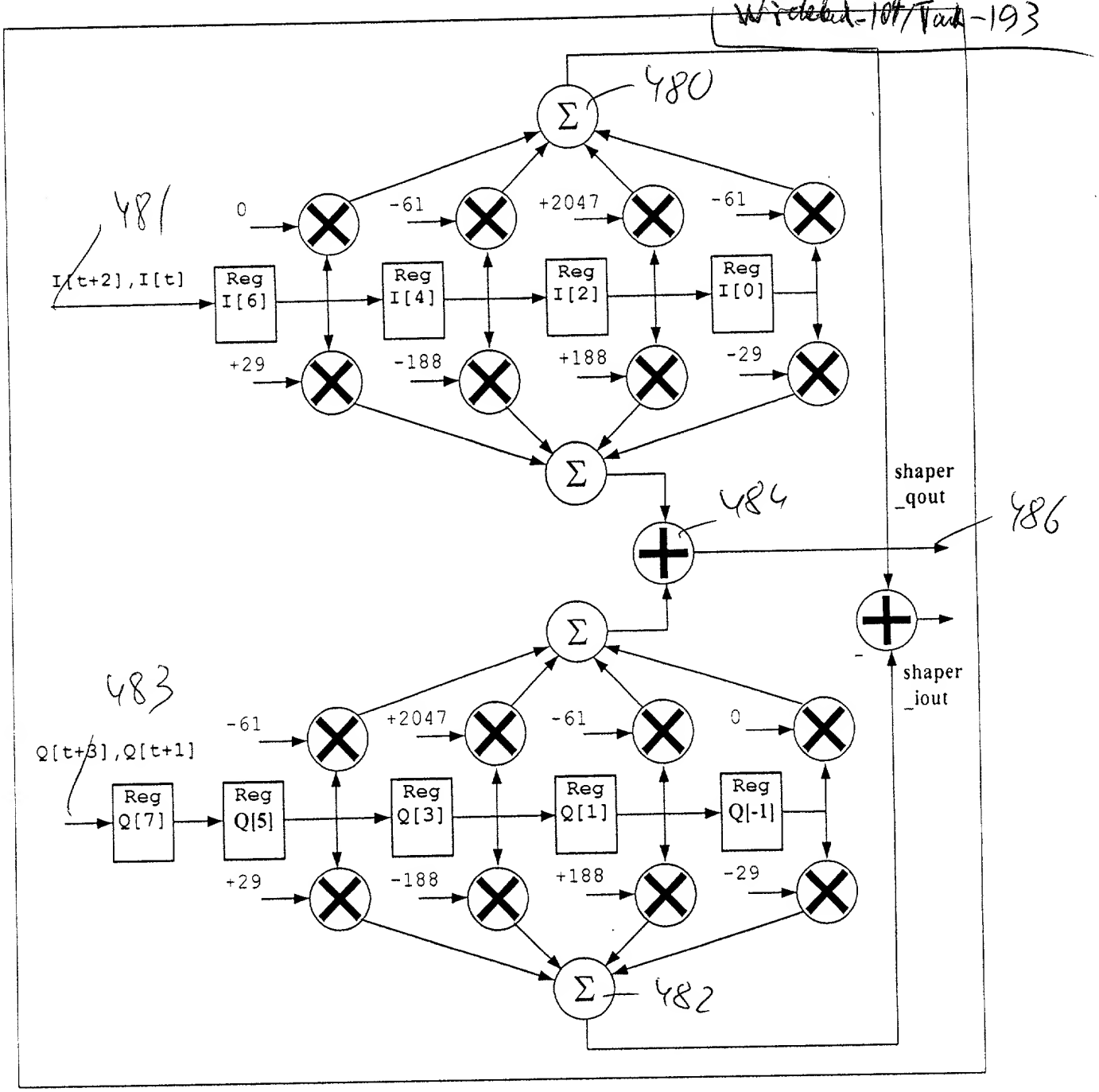


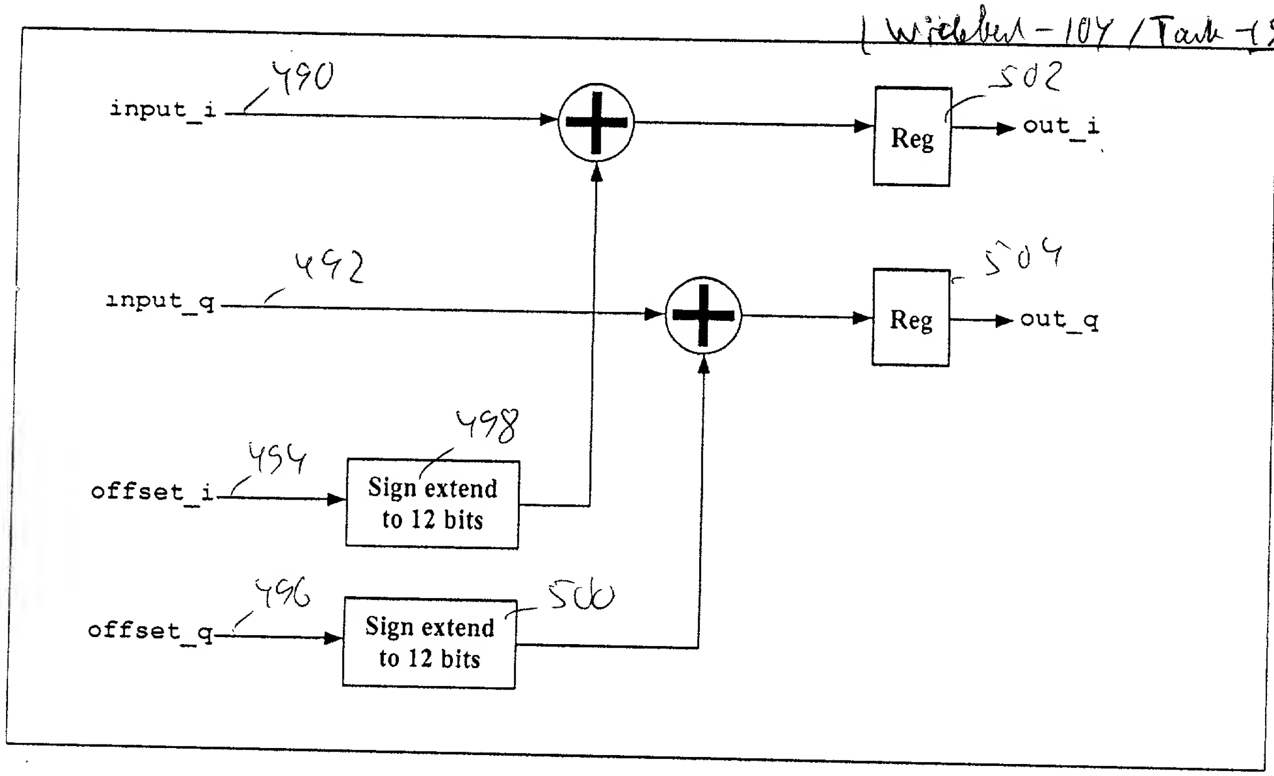
FIG. 19D

FIG. 19E



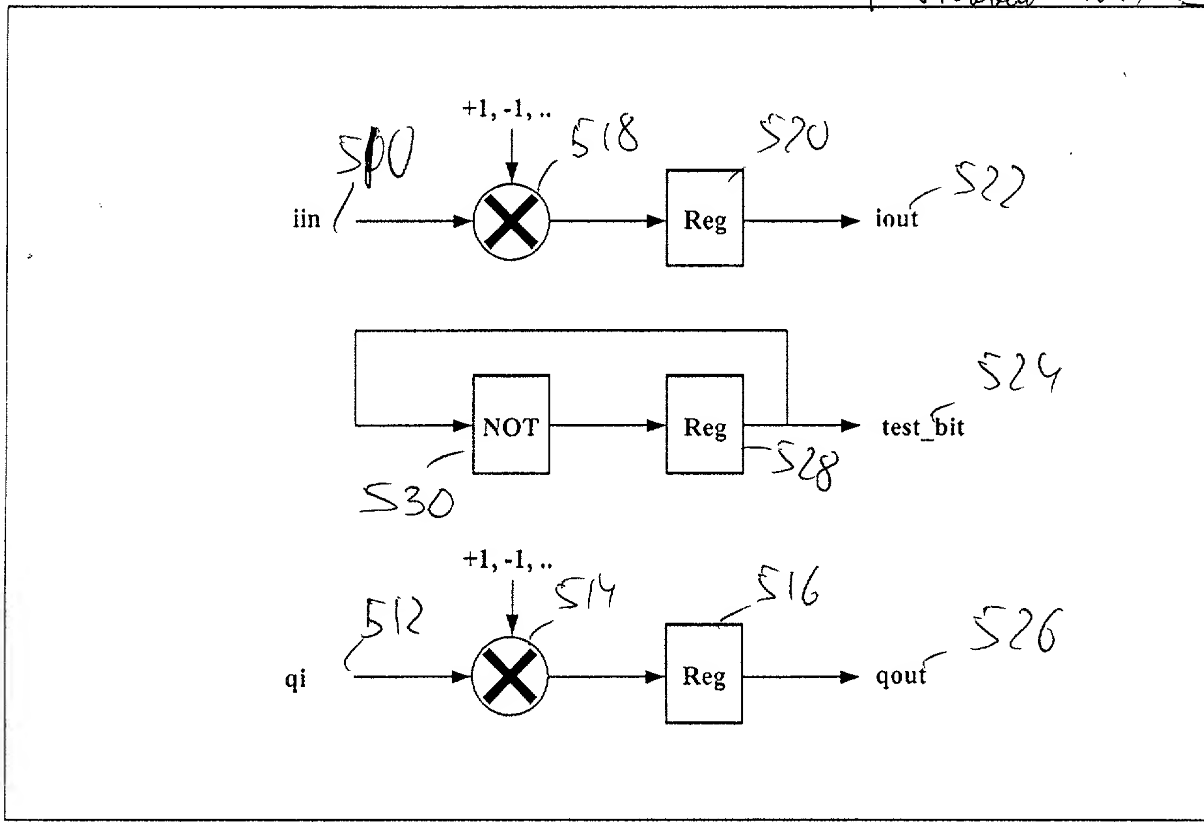
DAC Compensation Filter

FIG 20



DC Offset Compensation

FIG. 21



Fs/4 Upconverter

FIG. 22

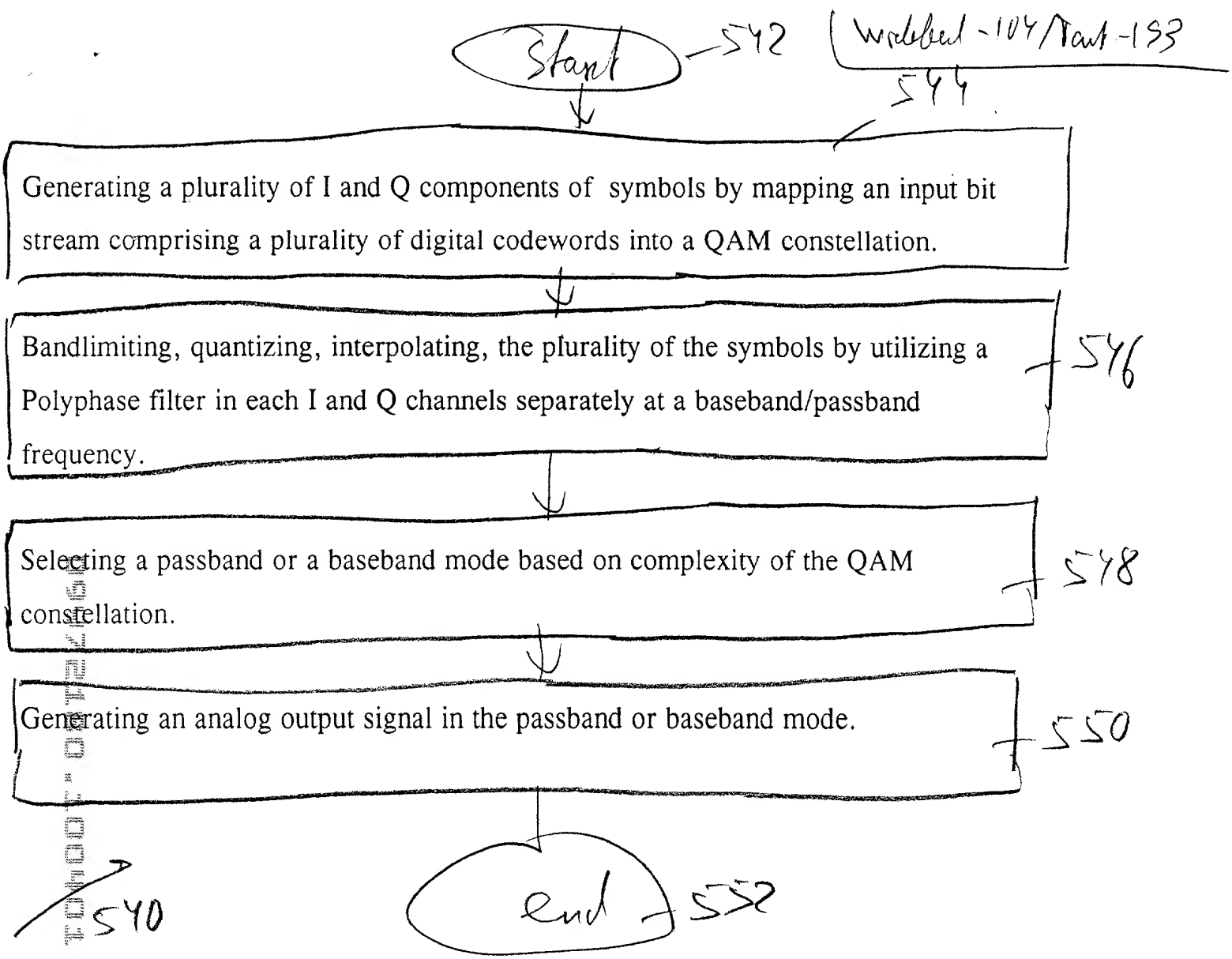

Start
542
Wideband-104/Tank-193
544
Generating a plurality of I and Q components of symbols by mapping an input bit stream comprising a plurality of digital codewords into a QAM constellation.
Bandlimiting, quantizing, interpolating, the plurality of the symbols by utilizing a Polyphase filter in each I and Q channels separately at a baseband/passband frequency.
546
Selecting a passband or a baseband mode based on complexity of the QAM constellation.
548
Generating an analog output signal in the passband or baseband mode.
550
end
552
540

FIG. 23

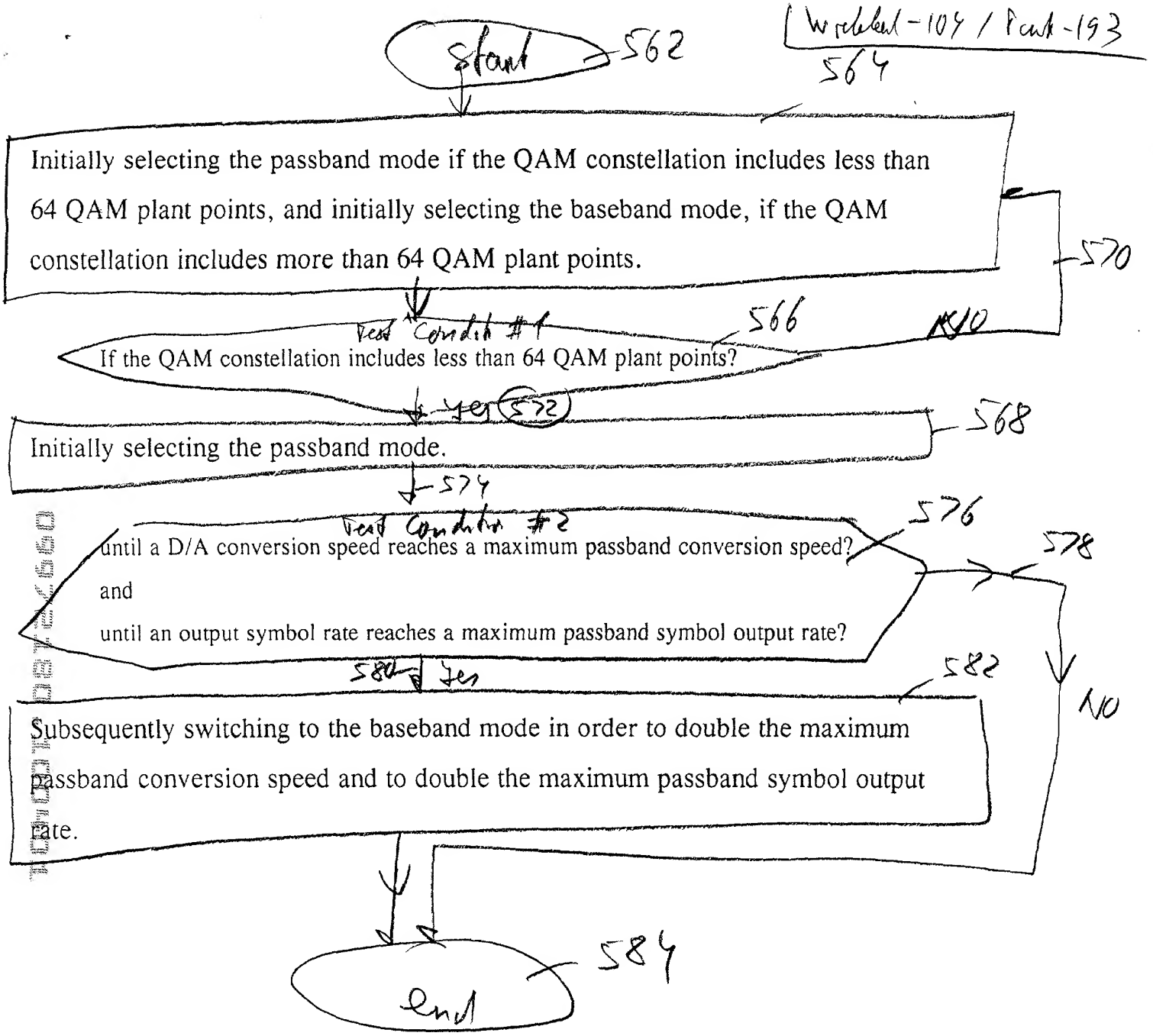


FIG. 24

Wideband-104/Tank-193